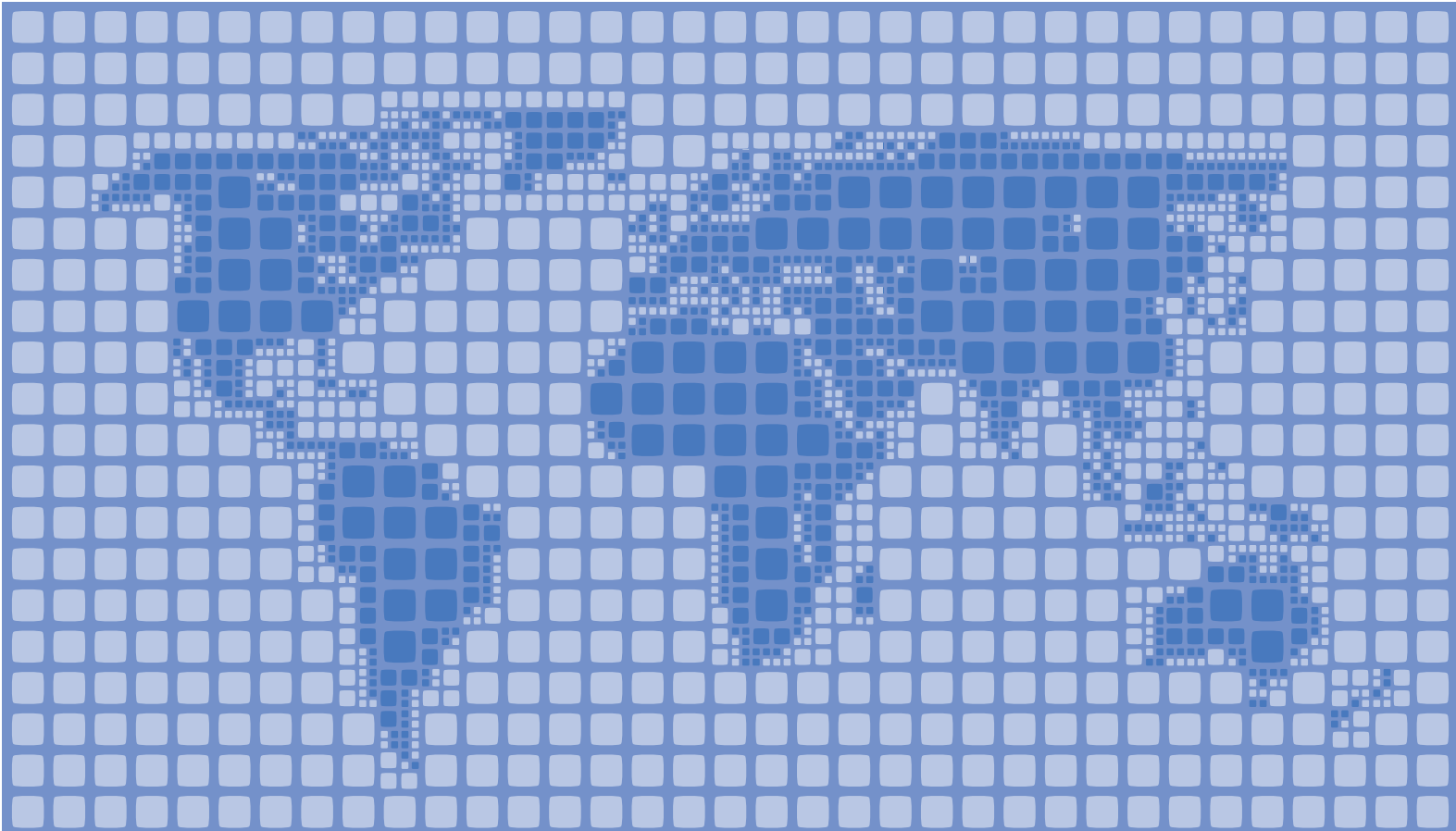


Taxation of Outbound Direct Investment: Economic Principles and Tax Policy Considerations

Michael P. Devereux

Research Report Prepared for the Advisory Panel on Canada's
System of International Taxation

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Abstract

This paper reviews economic principles for optimality of the taxation of international profit, from both a global and national perspective. It argues that for systems based on residence or source, nothing less than full harmonisation across countries can achieve global optimality. The conditions for national optimality are more difficult to identify, but are most likely to imply source-based taxation. However, source-based taxation requires an allocation of the profits of multinational companies to individual jurisdictions; this is not only very difficult in practice, but in some cases is without any conceptual foundation. The taxation of interest income on a residence basis is also hard to justify if the aim of the tax system is to tax only economic activity in a given country.

This paper draws on a related paper "Taxing Foreign Profit: Principles and Feasibility", presented at the European Tax Policy Forum Conference, London, April 21, 2008, at the Conference in Honour of Richard Musgrave, Sydney, June 2-4, 2008, and at the Centre for Business Taxation symposium, Oxford, June 16, 2008.

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Table of Contents

1.	Introduction	1
2.	Economic principles for global optimisation	4
2.1	Global optimisation and production efficiency.....	5
2.2	Capital ownership neutrality.....	6
2.3	Distinguishing portfolio and direct investment.....	8
2.4	International trade.....	10
2.5	Summary of principles for global optimisation.....	11
3.	Economic principles for national optimisation	12
3.1	The traditional approach.....	12
3.2	Distinguishing portfolio and direct investment.....	13
3.3	Introducing other links between domestic and outbound investment.....	14
3.4	Summary of principles for national optimisation.....	15
4.	Difficulties in identifying the location of profit	16
4.1	Does source-based taxation have a sound conceptual foundation?.....	16
4.2	Distinguishing different forms of income.....	18
4.3	Capital gains.....	20
5.	Defining the Tax Base	21
6.	Conclusions	22
	References	24

1. Introduction

This paper addresses the basic principles of the taxation of outbound direct investment. More specifically it addresses some of the questions raised in the paper *Enhancing Canada's International Tax Advantage*, written in April 2008 by the Advisory Panel on Canada's System of International Taxation. However, the issues discussed here apply not just to Canada but to any country with significant outbound direct investment. Indeed, several other countries are also currently in the process of reviewing their systems of international taxation, including the United Kingdom, the United States, Australia and New Zealand.¹ Within the European Union (EU), recent changes have been prompted partly by various cases in the European Court of Justice. However, more generally, the importance of the taxation of international income is growing continually as companies and their activities become increasingly mobile.

The paper has two main aims. First, it aims to review and extend the existing academic literature on the optimal structure of taxes on international corporate profit. This has been studied for nearly half a century, yet there remains considerable confusion about the prescriptions offered by such theory in a modern setting. Also, though, existing theory is rather broad; for example, little has been written on the difficulty in identifying where profit is generated, on the links between the optimal treatment of outbound investment and the distinction between active and passive income, debt and equity, and the appropriate taxation of capital gains. The second aim of the paper is to consider these issues in the light of general principles.

A fundamental question addressed by the paper is whether income of a domestic corporation which arises abroad should be subject to taxation in the home country. This question is considerably complicated by the fact that if such income is not taxed on accrual in the same way as domestic income, then there may be opportunities for domestic corporations to shift "domestic" income abroad to escape domestic taxation. Such income shifting in turn requires anti-avoidance rules, which almost inevitably involve the taxation of income apparently earned abroad.

However, this complication should not guide the general principles under which the tax structure is designed. It is possible to distinguish two approaches: (1) foreign corporate income is generally exempt from domestic tax, though with exceptions to prevent excessive profit shifting; and (2) foreign corporate income is generally subject to tax on accrual by the home country, though with exceptions for specific types of income, or for income arising in specific foreign jurisdictions. Sections 2 and 3 of this paper leave complications of income shifting to one side to identify the basic principles of whether such income should be subject to tax in the home country.²

1 See the references in Advisory Panel on Canada's System of International Taxation (2008).

2 Of course, one of the inherent problems to be faced is identifying a "home" country.

Historically, governments have probably had the second approach in mind when designing their systems of taxing corporate income arising abroad. This can be seen, for example, in the basic structure of Canada's existing tax system, which could be broadly represented as seeking to tax foreign income, subject to a series of exceptions. Those exceptions are now rather broad, and include income arising in countries with which Canada has a tax treaty or has signed a Tax Information Exchange Agreement (TIEA). Nevertheless, in the absence of specific exclusions such as this, Canada taxes repatriations of foreign income while allowing a foreign tax credit. According to the Canadian Department of Finance (Advisory Panel, 2008, page 14), in 2005 a little under 10 percent of dividends received by Canadian companies from their foreign affiliates was subject to Canadian tax. But the world is becoming increasingly international, and it is by no means clear that the historic norms should continue to guide the principles of international tax policy. This paper therefore attempts to set out some underlying principles which might be fit for at least the first part of the 21st century.

In reviewing such principles, a distinction must immediately be made as to the aims of the tax system. Specifically, principles might be rather different if the aim is to maximise global income, compared with the aim of maximising domestic income. This paper considers both possibilities. It begins with the aim of maximising global income and analyses tax structures which are consistent with the production efficiency concept of Diamond and Mirrlees (1971). Production is allocated efficiently throughout the world if it is not possible to reallocate resources between activities in a way that would increase total output. The paper shows that in a real-world situation in which there are cross-border flows of portfolio and direct investment, and also international trade, then any taxes on a source or a residence base would be distorting unless they were completely harmonised.

By contrast, in the same situation, this paper argues that from a national perspective it is generally optimal to exempt outbound investment from tax. This is contrary to the standard prescription of economic theory, which argues that outbound investment should be taxed on accrual at the same rate as domestic investment, with foreign taxes being deductible from the residence country tax base. The reason for the difference stems from the substitutability of domestic and outbound investment. If £1 of outbound investment crowds out £1 of domestic investment, then the standard results hold. But if both forms of direct investment are financed at the margin by inbound portfolio investment, then the link between them is broken. In this case, it is not necessarily optimal to tax outbound investment at the same rate as domestic investment. If links between domestic and outbound investment are reintroduced, then this principle may not hold; however, such links are likely to be specific to the circumstances; as such, it is unlikely that a general tax system can accommodate them.

If the presumption from a national perspective is in favour of exempting corporate income earned abroad, then there is a need to identify income which is earned at home. In a modern open economy, such a task is fraught with difficulty. The basic problem is that it may be impossible, even conceptually, to identify that part of a multinational company's income which is generated in the home country. A multinational company may make higher profit *because* it operates globally; if so, then the requirement to allocate its profits between jurisdictions may have no underlying conceptual basis.

In practice, of course, governments distinguish between various forms of income which they believe are more or less mobile, and tax them differently. The Canadian treatment of “foreign accrual property income (FAPI)” is a good example. The basic presumption here is that “passive income” arising abroad potentially reflects income shifting out of Canada and should therefore be taxed on an accruals basis as if it had arisen in Canada.³ However, such a position is too extreme since clearly not all such income has been shifted out of Canada, and so a variety of exceptions to this treatment have been introduced.

The distinction between passive and active income has its roots in the distinction in the broad international tax system that different forms of income are treated differently. The classic example of this is of the different treatment of the returns to debt and equity finance. Interest payments (and other payments, such as fees and royalties) typically are taxed in the country in which they are received rather than the country in which the underlying return out of which they are paid is earned. Of course, most economists would argue that tax systems should not discriminate between the returns to debt and equity-financed investments at all. But given that virtually all corporate tax systems in the world do make this distinction, then their international treatment also becomes problematic.

The paper is organised as follows. Sections 2 and 3 discuss a number of issues in the determination of the optimal treatment of international income, first from the viewpoint of the world as a whole, and then from the viewpoint of the country from which outbound investment occurs. Section 4 discusses in more detail the difficulties of implementing a system which aims to tax only income arising in the domestic economy. Section 5 briefly addresses the design of the tax base, and Section 6 concludes.

3 The United Kingdom has recently proposed a similar regime.

2. Economic principles for global optimisation

The best-known concepts relating to the optimal taxation of international capital income date back to the 1960s, in contributions from Peggy Musgrave (Richman, 1963; Musgrave, 1969). Musgrave introduced the terms “capital export neutrality (CEN)” and “capital import neutrality (CIN)”, which are now in common use. CEN holds if any individual investor faces the same effective tax rate on his investments, wherever those investments are located. CIN holds if all investments undertaken in the same jurisdiction face the same effective tax rate. The Advisory Panel (2008, page 11) briefly summarises these two concepts, as well as the more recent concept of “capital ownership neutrality (CON)”. However, the discussion falls short of identifying the relative importance of the three forms of neutrality; neither does it discuss the implications for the design of taxes.

Suppose that, at the margin and in the absence of taxation, competition drives the marginal pre-tax rate of return on all investments in a jurisdiction to be equalised. Then in a simple framework (see, for example, Keen, 1993) CEN implies that (a) the international tax system will not distort the location decisions of any individual investor, (b) the pre-tax rate of return in all jurisdictions will be the same (production will be efficiently organised), but (c) investors in different jurisdictions may face different post-tax rates of return on their investment, and hence different incentives to save. CIN implies that (a) the location choices of investors may be affected by differences in effective tax rates, (b) marginal pre-tax rates of return will differ across jurisdictions (there will not be production efficiency), but (c) investors in different jurisdictions will face the same post-tax rate of return on each of their investments, and hence all face the same incentive to save.

To analyse this in more detail, suppose that there are two countries, *A* and *B*, with one investor and one asset in each country. The rate of return on each asset depends on the amount invested in that asset: as more is invested, the marginal rate of return declines. Each investor can purchase shares in either asset. The effective tax rates may depend on the location of the investor and the location of the asset: for example, t_{AB} is the effective tax rate faced by the investor in *A* on the returns from the asset in *B*. We will return below to the question of how these effective tax rates are defined.

In principle, each investor would want to invest in each asset up to the point at which the post-tax rate of return from each investment was the same: if the post-tax rate of return was not the same, then the investor could increase her overall return by switching from the investment with the lower rate of return to the investment with the higher rate of return.

However — at least in the absence of risk — it is by no means certain that both investors will hold both assets simultaneously: indeed it is unlikely that they will do so without some pattern in effective tax rates. That is because both investors share the same pre-tax rate of return on each asset; but if they face different effective tax rates, they will face different post-tax rates of return. In general, they will not both be able to equalise their post-tax rates of return. If they do not, then only one investor would hold both assets, and the other would specialise in the one generating the higher post-tax rate of return.

CEN holds in both countries if $t_{AA} = t_{AB}$ and that $t_{BA} = t_{BB}$: that is, each individual investor faces the same effective tax rate on the returns from both assets. In this special case, equalising post-tax rates of return for either investor will ensure that the pre-tax rates of return from the two assets will also be equal, implying that production will be efficiently organised. In this case as well, both investors can hold both assets — though if their tax rates differ ($t_{AA} \neq t_{BB}$) then their post-tax rates of return will also differ.

By contrast, CIN holds in both countries if $t_{AA} = t_{BA}$ and $t_{AB} = t_{BB}$: that is both investors face the same effective tax rate when investing in a single asset. In this case, and assuming that the effective tax rates on the two assets are different from each other, equalisation of post-tax rates of return will not generate equalisation of pre-tax rates of return. However, the post-tax rates of return faced by each investor will be the same.

The distinction between these two notions of neutrality has led to some debate as to which is the more important (see, for example, Keen, 1993). The economic literature has generally favoured CEN, on the grounds that it generates production efficiency (discussed further below), though this has not always met with approval. Thus, for example, McLure (1992) has claimed that: “economists have generally favoured CEN because it maximises global welfare ... but businessmen generally favor the ‘level playing field’ provided by CIN.”

However, through a number of contributions discussed below, the question of the optimal tax structure has now progressed well beyond a simple analysis of CEN and CIN. The remainder of this section reviews and develops broader principles.

2.1 Global optimisation and production efficiency

The starting point for an analysis of optimal tax systems is the Diamond and Mirrlees (1971) framework which demonstrated that, within a single country, it is optimal to preserve production efficiency. This holds when it is not possible to increase total output by reallocating inputs to different uses; which implies that the marginal pre-tax rate of return is the same on all investments. If this does not hold, then total output could be increased by shifting capital inputs from a less productive use to a more productive use. Competition between investors would achieve this in the absence of distorting taxes.

However, a number of caveats must be made before simply accepting that production efficiency is optimal. First, the Diamond-Mirrlees theorem relies on two critical assumptions: that there are no restrictions on the use of tax instruments available to the government, and that economic rent is fully taxed at 100 percent⁴ (or there is no economic rent). Keen and Piekola (1996) analyse optimal tax rates between co-operating countries when economic rents exist but cannot be taxed at a rate of 100 percent. In this case, the optimal tax system depends on similar factors to those identified by Horst (1980); namely the elasticity of the supply of savings and the elasticity of the demand for capital in each jurisdiction. Keen and Piekola also show that the optimal tax structure depends on the rate at which economic rents are taxed.⁵

4 See Stiglitz and Dasgupta (1971).

5 Huizinga and Nielsen (1995, 1996) analyse optimal tax policy when economic rents are taxed at less than 100 percent, in the absence of cooperation amongst governments.

A second caveat was introduced by Keen and Wildasin (2004). They point out that the Diamond-Mirrlees model does not directly apply in an international setting, since there is no longer a single government budget constraint, but each country has its own budget constraint. They analyse the case in which lump sum transfers between governments are ruled out, but where transfers can instead take place via trade taxes and subsidies. Under these circumstances, it may be the case that the optimal (Pareto-efficient) tax system does not generate production efficiency. However, as pointed out by Edwards (2005), if the aim is to generate a global optimum, it is not clear why governments should co-operate by adjusting their trade taxes, rather than agreeing to lump-sum transfers. In the latter case, we are effectively returned to the Diamond-Mirrlees setting of a single budget constraint.

Although the global optimality of production efficiency is an important issue, we now leave these caveats to one side. In the following discussion, we instead focus on the implications for the design of international taxes on profit of a requirement for production efficiency. We then consider in Section 3 the rather different case of national optimality.

2.2 Capital ownership neutrality

Based on the simple choice between CEN and CIN, in a very simple framework, then the aim of production efficiency generates a presumption in favour of CEN. However, before developing the underlying framework further, we discuss the third form of neutrality identified by the Advisory Panel (2008): capital ownership neutrality (CON). This term was used by Devereux (1990) and by Desai and Hines (2003), although the use of the term is different between the two contributions. Let us begin with a discussion of the Desai and Hines concept. They note that much foreign direct investment takes the form of acquisitions, rather than greenfield investment. This is consistent with there being differences in productivity according to the owner of an asset; the classic example is of a multinational firm being more productive than a domestic firm (there is a wealth of empirical evidence on this: see, for example, Criscuolo and Martin, 2004). Now suppose that investor *A* would have a more productive use of an asset than the current owner, investor *B*. In the absence of other factors and taxes, there would be an improvement in world output (and potential gains to both *A* and *B*) if *A* purchased the asset from *B*. CON, as used by Desai and Hines, is a condition that the tax system does not distort the ownership of assets; in this case, the international tax system does not prevent *A* purchasing the asset from *B*.

To analyse this in more detail, return to the simple framework above. However, now suppose that the rate of return on each asset depends on the identity of the investor: for example, for the asset in *A*, p_{AA} is the pre-tax rate of return earned by the investor residing in *A*, and p_{BA} is the pre-tax rate of return earned by the investor residing in *B*. To make things more concrete, suppose that, whatever the total size of the asset in *A*, the investor from *A* is more productive: that is, $p_{AA} > p_{BA}$.

Begin with investor *A*. In the absence of taxes, he will invest in asset *A*, which for a small investment yields a return higher than asset *B*. He will continue to invest in asset *A* until the marginal return from asset *A* falls to the level of asset *B*,⁶ that is until the pre-tax rates of return are the same: $p_{AA} = p_{AB}$. The position of investor *B* depends exactly on how we define ownership. Desai and Hines seem to have in mind discrete ownership: either asset *A* is owned by investor *A* or by investor *B*, but not both. In this case, in equilibrium investor *B* would generally simply hold asset *B*.⁷

In the presence of taxes, the conditions are similar, except that the investors' investment allocations will depend on the post-tax rates of return instead of pre-tax rates of return. The introduction of a completely general tax system could generate an equilibrium in which investor *B* owns asset *A* instead of investor *A*. That is, if *A* were taxed at a very high rate on the return from asset *A*, while *B* were taxed at a very low rate on the return from asset *A*, then *B* may value the asset more highly than *A*. This case would violate the Desai/Hines notion of CON. To ensure CON holds we therefore require conditions on the effective tax rates such that investor *A* continues to own asset *A*.

So far, however, we have effectively treated the investment by either investor as a new investment. What if *B* owns the asset, but *A* wishes to purchase it since $p_{AA} > p_{BA}$? As noted by Becker and Fuest (2007), the price at which *B* is prepared to sell the asset should reflect the tax rate he faces on the return. If $t_{AA} > t_{BA}$, then in the absence of the additional pre-tax return generated by *A*, *A* would value the asset at a lower value than *B*. *A* would only purchase the asset if the additional return generated by *A* owning the asset at least compensates for this difference in valuation.

In general — as Desai and Hines argue — CON will hold if *A* and *B* face the same overall effective tax rate as each other on the returns to any asset: that is, $t_{AA} = t_{BA}$ and $t_{AB} = t_{BB}$. (In this framework, this is equivalent to the condition for capital import neutrality.) This would occur if the returns to the asset were taxed only in the location of the asset, and not in the residence location of the investors (which may be different). This in turn is consistent with the investors' residence countries exempting foreign source income from tax, the case emphasised by Desai and Hines.

However, now let us add, in turn, two further elements. First, we have so far discussed only the position of individual investors; we have not yet distinguished between investment undertaken by individuals and investments undertaken by corporations. Second, we have not yet considered in detail the role of competition between companies, including international trade.

6 It is also possible that given his wealth, and lack of any further finance, the rate of return on asset *A* remains higher than the rate of return on asset *B*; in this case, investor *A* would invest only in asset *A*. However, we do not analyse this possibility.

7 However, if *B* can hold a minority share in asset *A* (which is managed and controlled by *A*), then *B* could also earn p_{AA} . However, we will not examine this case either.

2.3 Distinguishing portfolio and direct investment

Devereux (2000) analyses simultaneously the optimality properties of personal taxes on capital income, and taxes on corporate profit. A useful framework for this distinction is to suppose that individuals (possibly indirectly through investment vehicles) undertake portfolio investment in corporations. These corporations need not be resident in the same country as the individual investor: despite a home bias in portfolio investment, there is huge cross-border portfolio investment. Corporations, in turn, raise finance from individual investors around the world, and undertake direct investment; again, the direct investment can be domestic, or cross-border.

Given perfect capital mobility for portfolio investment, and abstracting from risk,⁸ then the post-corporation tax rate of return required by companies must be equalised across all companies, no matter where they are located. In equilibrium, taxes levied on individual shareholders may affect the post-corporation tax, pre-personal tax, rate of return, required of companies, but that same rate is required of all companies. We treat personal taxes as being levied on a residence basis: any withholding tax levied on payments to all shareholders is for this purpose treated as a tax on the corporation. A change to any individual's personal tax rate may affect its allocation of investments, and may affect its post-tax rate of return. However, as long as each investor is small relative to the market (or each group of investors is small) such a change in tax rates will not affect the required post-corporation tax rates of return. Devereux (2000) analyses the required relationship between corporate and personal taxes in such a setting: here we abstract from personal taxes altogether in order to focus solely on corporate taxes. How does such a setting affect the requirements for achieving production efficiency?

The key new ingredient created by considering portfolio and direct investment is that the post-corporation tax rate of return required from direct investment by corporations is now fixed. In terms of the framework used above, it is straightforward to reinterpret the investors described above as being corporations. In this case the effective tax rates are effective corporate tax rates. The key difference, however, is that the post-corporation tax rate of return is fixed, and is common across all companies.

Like Desai and Hines (2003), Devereux (2000) also considers the case in which the productivity of an asset depends on the company which owns it. However, Devereux (2000) considers a more general problem than simply the ownership of a single asset. Suppose, for example, that each company operates in each country through wholly-owned subsidiaries. Then the pre-tax rates of return on the assets in a single country need not be equal to each other.

Consider this case first in the absence of tax. If one firm were more productive than another, it would generate a higher rate of return. This would attract more capital from individual investors. As the company expanded, its marginal rate of return would decline (and that of the other company would increase if it had less capital). In equilibrium, the two companies would earn the same marginal rate of return. But in the presence of corporation tax, post-tax rates of return must be equalised. Differences in effective corporate tax rates must therefore affect only pre-tax rates of return.

⁸ There is an extensive literature which analyses portfolio investment decisions in the presence of risks and differential taxes on capital income. See, for example, Brennan (1970), Gordon and Bradford (1980) and Bond, Devereux and Klemm (2007). However, we abstract from these issues here.

How do the neutrality concepts work in this context? There is no impact on the implications for how CEN can be achieved, except that the requirements for neutrality now specifically apply to effective corporation tax rates: as long as each company faces the same effective corporate tax rate on all its investments then location decisions will not be distorted.

However, CEN on its own is no longer sufficient to achieve production efficiency. Suppose CEN holds, but that the effective tax rate faced by company *A* exceeds that faced by company *B*. Then the pre-tax rates of return earned by company *A* must exceed those earned by company *B*: production efficiency would not hold.

It is also clear that if only one country introduced CEN, this would not generate production efficiency. For example, if only *A* introduced CEN, the pre-tax rates of return would differ between the two companies, and they would also differ across the different investments undertaken by *B*. This calls into question the notion of some individual countries (see, for example, HM Treasury and HMRC, 2007) that they aim to achieve CEN for their own investors. On its own, this is not optimal either at a global level or for an individual country (see below).

What of CIN? This is more complex, since to some extent this is a neutrality property in search of a rationale. When introducing this concept, we noted that — in a simple framework — CIN would imply that all investors faced the same post-tax rate of return (though pre-tax rates of return would differ across countries). However, this is not an issue for the optimality of corporation taxes if all companies are required to earn the same post-corporation tax rates of return. The ultimate post-tax rate of return earned by investors will be affected by their personal tax rates on capital income, but not on corporation taxes.

However, the “level playing field” mentioned by McLure (1992) suggests another interpretation of CIN, emphasised by Devereux (1990, 2000). This is that companies from *A* and *B* compete with each other in each country. Suppose, for example, that each company produces a similar good in each country, and competes with the other company in the market in that country. The pre-tax rate of return required by each company will affect the price at which it can afford to sell its good. In general, the higher the relevant tax rate faced by the company on its investment, the higher will be the price at which it must sell its own good. But if CIN holds ($t_{AA} = t_{BA}$ and $t_{AB} = t_{BB}$) then the companies face the same effective tax rates in each country, so that neither company will gain a competitive advantage.

Thus, if producers sell their product only in the country in which the good or service is produced, then levying the same effective tax rate on all producers in that country is a sufficient condition for taxes not to distort competition. This is equivalent to an exemption system in all residence countries.

Although this is a form of CIN, it might also be considered a form of CON. In this setting, CON continues to require an exemption for foreign source income (or at least a tax system which is equivalent). That is, to avoid distortions to the corporate ownership of assets in any jurisdiction, all companies which may purchase assets there must face the same effective rate of tax.

However, the concept of fair competition outlined here is more general than CON, since the change of ownership considered in CON could be achieved not by acquisition, but by firm *A* simply entering the market and undercutting *B*. For example, it is possible that there are reasons why *A* would not purchase the assets of *B*, even if it was more productive (for example, due to high transactions costs, or *B* being unwilling to sell). In this case, *A* and *B* would compete in the same market. Ultimately, it is possible that *B* could go out of business, to be replaced by *A* (which would take us back to the analysis in the previous section, instead of assuming that both countries operate in both markets).

A broader interpretation of CON is therefore that one company has no competitive advantage over another as a result of differential effective tax rates depending on ownership.

2.4 International trade

But the sense in which the term CON was used by Devereux (1990) really refers to a still broader concept, which also requires consideration of another dimension: international trade. In practice, companies do not always sell their output in the location of production: they can export the output to other countries. This has a profound impact on the requirement for production efficiency. Suppose companies *A* and *B* compete with each other in a third country. To avoid any distortion to competition in the third market, it would be necessary for both companies to face the same effective tax rate. Yet, typical corporation taxes are not levied on a destination basis — where the output is sold. So there would not necessarily be any tax levied in the third country. Instead, tax would be levied either in the “source” country, where the investment takes place, or the “residence” country, where the company’s management and control takes place. Yet *A* and *B* may compete with each other even if their source and residence locations are different from each other.

It is perhaps useful to define a new term — *market neutrality* — which holds if taxes do not distort competition between companies; that is, one company does not derive a tax-induced competitive advantage over another.⁹ It is clear from this analysis that market neutrality would require full harmonisation of source- and residence-corporation taxes. That is, the effective tax rates faced by all potential competitors in any third country would need to be the same. This is clearly a much more demanding requirement than achieving CON in the Desai and Hines sense, which can be achieved by an exemption system, generating source country taxation.¹⁰

⁹ This is the original sense of CON, as used by Devereux (1990), but “market neutrality” is probably a more accurate name.

¹⁰ It is for these reasons that the empirical papers of Devereux and Pearson (1995) and Devereux and Loretz (2008) consider the proximity of European tax systems to full harmonisation.

2.5 Summary of principles for global optimisation

In a world with direct and portfolio investment, in which all companies worldwide are required to earn a given post-tax rate of return, the principles of CEN, CIN and CON need some revision. With regard to the optimal setting of corporation tax, the principle that different individual savers should face the same post-tax rate of return is no longer relevant, since corporation taxes in any one country typically have no impact on this rate of return.

That leaves the principle of production efficiency. It is true that production efficiency is Pareto optimal only under certain conditions. However, there is no comparable and clear principle in cases where these conditions do not hold. As Slemrod (1995) has argued, the situation here is comparable to the principle of free trade. The conditions under which free trade is optimal are well known; while it is possible that these conditions do not hold, most economists still consider free trade to be a useful guiding principle. The same could be said for production efficiency.

Other “principles” are therefore subsidiary to production efficiency. Based on the discussion above, production efficiency implies two principles:

1. *Direct “CEN”*: Taxes should not distort the location of corporate activity.
2. *Market neutrality*: Taxes should not distort competition (even in a very broad sense) between any companies operating in the same market.¹¹

The second of these principles is in some ways a more general concept of CON than the definition of Desai and Hines (2003). If it were the case that any less productive firm was immediately acquired by a more productive firm, then all (remaining) firms would be equally productive. In this case there would be no harm to competition, since all firms would be equally productive. But if such acquisitions do not always occur — as seems likely, given costs of acquisition — then we are left with firms of different levels of productivity co-existing. This introduces the more general principle above.

In a world where the post-corporation tax rate of return required for all companies is the same, production efficiency cannot be achieved by residence- or source-based taxes unless they are fully harmonised. In the absence of sufficient international agreement to achieve that outcome, a question arises as to whether it is possible to identify which of the economic distortions generated by taxes have the greater welfare costs. Source-based taxation distorts location choice and competition generated by international trade; residence-based taxation distorts competition generated by cross-border investment and international trade. However, given that all these factors are closely related — for example, decisions of location involve the choice between cross-border investment and trade — any argument in favour of one form of taxation on this basis would be precarious.

¹¹ Devereux (2000) and Devereux and Pearson (1995) summarized the principles as Direct CEN and Direct CIN. If both of these hold, then so do the two principles set out here.

3. Economic principles for national optimisation

So far the discussion has focused on the conditions needed to achieve global production efficiency. But this almost inevitably requires international cooperation. Perhaps a more realistic goal for a national government is to maximise the welfare of its own citizens. In this section we address the issue of the optimal tax treatment of the returns to outbound investment from the perspective of the domestic economy only. Many of the issues raised in the previous section on global optimisation also apply here. This section begins by summarising the traditional approach, and then asks how the policy prescriptions are affected by factors ignored in the traditional approach. The key new factor is the distinction between portfolio and direct investment, discussed above, which fixes the post-corporation tax rate of return required from a company located in a small open economy.

3.1 The traditional approach

Maximising national income, rather than global income, may generate a very different “optimal” tax structure for the taxation of cross-border income. As with the terms CEN and CIN, Musgrave (Richman, 1963, 1969) introduced the term “national neutrality” to describe optimal policy for an individual government. Supported by more the formal analysis of Feldstein and Hartman (1979), the key policy prescription is that a government should tax the worldwide income of its residents, treating foreign taxes as a cost (and hence allowing them to be deducted, but not allowing a credit).

The rationale behind this is as follows. Suppose there is a fixed supply of saving, to be allocated between domestic and outbound investment. For the country as a whole, the optimal allocation of investment would equate the “social” rates of return from the two. In a simple framework,¹² the social rate of return to the home country is the return net of foreign taxes, but before domestic taxes (since domestic taxes are used to benefit domestic residents). Hence the post-foreign tax rate of return on outbound investment should be set equal to the pre-tax rate of return on domestic investment. Private investors, however, will allocate investment to equalise post-tax rates of return. These two allocations are only the same under a worldwide tax system where foreign taxes are deductible from the home country tax base.

Slemrod (1995) also justifies this approach with an analogy to free trade. In a basic economic model of a small open economy, it is inefficient to levy import tariffs or a source-based tax on capital income. But from the perspective of an exporting country, the existence of an import levy in the importing country does not justify any rebate to exports. Similarly, if the capital-importing country does have a source-based tax on capital income, that is no reason for the residence country to adjust its tax system: the residence country should levy tax on the returns net of foreign tax (which is an expense), and not give any credit.

12. Strictly, where the marginal cost of public funds is unity.

3.2 Distinguishing portfolio and direct investment

A central assumption of the basic argument — explicitly stated in the Feldstein and Hartman (1979) model — is that there is a direct link between domestic and outbound investment: one dollar more invested abroad reduces investment at home by one dollar. Yet this is not generally the case in practice. Indeed, in the framework of portfolio and direct investment set out above, domestic companies can raise unlimited finance on the world market at the world post-corporation tax rate of return. In this case, there may be no link at all between domestic and outbound investment, and hence no link between the optimal tax rates.

This position is studied in some detail by Devereux (2004), who considers a small open economy that has both inward and outward portfolio and direct investment, and analyses the optimal relationship between the taxes on these different forms of investment. In this model, outbound investment does not crowd out domestic investment, since at the margin both forms of investment are financed by inward portfolio investment. In this case, the existence of a tax on domestic investment has no implications for the optimal effective tax rate for outbound investment. If the country as a whole has no market power (that is, all its firms together are small relative to the world market), then the optimal tax rate on outbound direct investment is zero. A similar result was implicitly found by Mintz and Tulkens (1996).

If the country does have some market power, then it could be optimal to tax the outbound investment, to drive up the world price of the product. This is similar to the market power case for a tax on exports. However, it is not feasible to do this in practice with a general tax system applying to all outbound investment.

The argument that the appropriate tax on outbound investment is zero is in fact similar to the argument that the appropriate tax on inbound investment is zero (see, for example, Gordon, 1986). This is because if the outbound direct investment is financed at the margin by inbound portfolio investment, then it really can be considered a form of inbound investment. The decision of a multinational company as to where to locate its parent company and headquarters is similar to any other location decision. A high tax rate associated with parent company location may induce the company to choose a different, lower taxed, location. In such a setting, there is no rationale for the government hosting the parent company to tax its worldwide income.

In an extreme case in which the capital simply flows through the residence country of the parent, then there is unlikely to be any gain to that country from being an intermediary location. In that case, any tax levied by the residence country is likely to deter the company from routing capital in that way. However, there are likely to be some benefits of hosting the company headquarters, as long as some economic activity takes place there. Moreover, although at the margin finance may be provided on the world market, given home bias in portfolio investment allocations, it is likely that at least some shareholders are resident in the same country. If there are some benefits such as these, then imposing a tax on worldwide income will in general raise the required pre-tax rate of return, possibly giving the company a competitive disadvantage in foreign markets, and hence reducing the attractiveness of the residence country as a headquarters location.

In this setting, it is possible to make the case against taxing the returns from outbound investment more forcefully by questioning the “nationality” of the company. Public comment still tends to refer to companies as a “UK multinational” or a “Canadian multinational”. But those terms are inherently contradictory. If a company is multinational, then how can it also be Canadian? Perhaps such a term might be justified if the company’s shareholders were all Canadian residents, but with international portfolio investment, that is unlikely to be the case. What proportion of the shareholders would need to be Canadian residents for the term to be reasonable? Would the term be justified if the headquarters of the company is in Canada? That seems implausible as well, since the headquarters may reflect only a small part of the company’s activities. Indeed, Desai (2008) argues that even basic headquarter functions of multinational companies are typically now split, and located in different countries.

In a typical multinational company, then, some activity of the company may be taking place in the country of the headquarters, but those activities are best seen as just one of the many and varied activities that the company undertakes worldwide. It is not clear why that justifies that country taxing the worldwide income of the company. Certainly it is hard to make a case that the location of the management, or the place at which the company primarily raises finance, or the place in which it is listed, or some other aspect of the headquarters, is the crucial element of the company which justifies that government of that country taxing the worldwide income of the company.

3.3 Introducing other links between domestic and outbound investment

In a more complex model, the links between domestic and outbound investment may be more subtle. Devereux and Hubbard (2003) consider the case in which a domestic company may export to the foreign market or produce abroad: in either case it competes with a non-resident company making the same decision. In principle, the domestic government could modify its domestic tax system to manipulate the decisions of the company in a way which would give it a competitive advantage, and hence boost domestic welfare. However, the “optimal” tax system in this setting depends on the economic parameters facing the company: exemption, credit or deduction systems could all be optimal in different situations. Again, it is not feasible to adjust the tax system for outbound investment according to the specific characteristics of the tax payer. Another possible link between domestic and outbound investment, considered by Becker and Fuest (2007), is that there may be a limit to availability of management in the company: undertaking an investment in one location precludes undertaking another somewhere else. Taken to an extreme, this would reintroduce the one-for-one relationship between domestic and outbound investment assumed by Feldstein and Hartman (1979).

There is now a growing empirical literature examining links between outbound and domestic investment (see, for example Simpson, 2008), which would imply an even more complex calculation of the optimal tax system. Again though, it is unlikely that the optimal system would be the same for all companies.

If governments cannot design tax systems which vary according to firm or sector characteristics, but are forced to implement general tax structures, then the reasoning above suggests that the underlying presumption should be in favour of a system which does not tax foreign income of domestic corporations.

3.4 Summary of principles for national optimisation

As with the principles for global optimisation, in a world in which all companies worldwide are required to earn a given post-tax rate of return, the presumption in favour of taxing worldwide income while allowing only a deduction for foreign taxes requires revision.

In fact, the presumption should swing in entirely the opposite direction towards exempting income earned abroad from domestic tax. In general, any tax levied would raise the required pre-tax rate of return on the company which would lessen its ability to compete with companies headquartered in other countries. This conclusion is only reinforced by questioning the justification for a government to tax the worldwide income of a multinational whose headquarters is located in that country. There is no obvious special feature of the location of the headquarters that justifies the imposition of a tax on worldwide income, as opposed to income arising as a result of domestic activity.

But the nature of the economic argument is important for policy. The argument is that the domestic country would actually be better off if it did not impose a tax on foreign income earned by corporations. This argument does not rely on the policy of the host country. Canada, for example, has an exemption system, but only for income arising in countries with which it has a treaty or a TIEA. The argument here implies that Canada would be better off exempting income from other countries as well, irrespective of the policy of the host government.

4. Difficulties in identifying the location of profit

Unfortunately, identifying that there is no clear rationale for taxing the returns to outbound investment, and hence exempting income earned by foreign affiliates from domestic tax, is straightforward compared to the problems of implementing a pure source-based tax system. A number of difficult problems arise: income and costs need in principle to be allocated between jurisdictions, yet not only is that difficult to achieve in practice, in many cases there is simply no conceptual basis to support any particular approach.

The treatment of different forms of income creates another problem: for example, interest payments are typically taxed in the country where they are received, rather than the country from which they are paid; yet this is in contradiction to the general principle that tax should be levied only where the income-generating activity took place. It is not clear why the form of financing of a foreign affiliate by its parent should turn the international tax system from one based on source (for equity-financed investment) to one based on residence (for debt-financed investment).

In this section we address these two issues in more depth; we finish with a brief discussion of the appropriate treatment of capital gains arising from the sale of an affiliate.

4.1 Does source-based taxation have a sound conceptual foundation?

The principle of exempting foreign source income from domestic taxation requires it to be possible to identify *where* corporate income is earned. A source-based international tax system would require a multinational company to allocate its profit between the taxing jurisdictions in which it operates. However, attempting to define where profit is generated is often very difficult, and in some cases impossible. Both income and costs arising in each jurisdiction in principle need to be identified.

In a simple case, we can consider for example a Canadian resident company that wholly owns a subsidiary which is registered, and which carries out all its activities — employment, production, sales — in, say, Mexico. Then Mexico would typically be considered to be the source of the corporate profit. Conventionally, we can also drop sales from the list of activities: if the subsidiary exported all its product to the United States, Mexico would still conventionally be regarded as the source of the profit (although in economic terms it is less clear why this would be the case).

Things are less clear, however, if the Canadian holding company owns several subsidiaries in different countries, which undertake different aspects of the multinational's activities: for example, finance, marketing, R&D, production, sales. The existing system of separate accounting requires all transactions between these different parts of the group to be valued, in order to divide total profit between the countries involved. The contribution made by each would be determined using "arm's-length pricing" — in principle, the price that would be charged by each subsidiary for its services as if it were dealing with an unrelated party. Of course, such a procedure is difficult in practice since in many cases no such arm's-length price can be observed; transactions between subsidiaries of the same corporation may not be replicated between third parties. But in many cases, not only is this difficult to administer, it has no conceptual foundation.

Further, it is in principle necessary to identify costs of financing specific activities. For example, a pure source-based tax system would give relief only for interest payments which relate to debt finance used to undertake domestic activities: that is, there is in principle a need to allocate interest expenses between domestic and foreign uses. This is not just difficult in practice, however; it is not clear even whether there is a "correct" allocation even conceptually. The multinational company may borrow in order to support its global activities; and it may have an overall desired gearing ratio. This would imply that borrowing for one activity would preclude borrowing for another activity. Which activity is actually financed by borrowing could be arbitrary. In this case, effectively there is simply an overall level of acceptable borrowing, and hence no conceptual basis on which to allocate interest payments between domestic and foreign uses.

Conceptual problems in splitting profit between jurisdictions arise in arm's-length pricing as well. For example, suppose that the multinational has two R&D laboratories in different countries. Each R&D laboratory has invented, and patented, a crucial element of the production technology. Each patent is worthless without the other. One measure of the arms-length price of each patent is therefore clearly zero — a third party would not be prepared to pay anything for a single patent. Another possible measure would be to identify the arm's-length price of one patent if the purchaser already owned the other patent. But if both patents were valued in this way, then their total value could easily be larger than the value of the final output.

More generally, it is far from clear that the arm's-length price used by independent parties would be the same as the price which would be transacted by affiliates within the same group: different organisational forms can be expected to arise because of differences between companies, which may be reflected in cost structures. The distortions created by imposing transfer pricing rules in this setting are explored in several papers.¹³ In a recent contribution, Devereux and Keuschnigg (2008) analyse how companies choose their organisational form: whether to expand abroad through foreign direct investment, and thereby own the foreign activity directly, or through outsourcing by licensing a third party to undertake the same activities. In this model, the choice of organisational form depends on the success probabilities of the firm.

13 See, for example, Halperin and Srinidhi (1987, 1991) and Harris and Sansing (1998).

Crucially, however, the arm's-length price chosen in the outsourcing case depends on the characteristics of that case. For example in the absence of tax considerations, if there is a financial constraint, the parent company would not require the foreign subsidiary to make an upfront royalty payment; such a payment would reduce the scale of activities abroad, which would reduce aggregate profit. However, a positive royalty payment would be optimally chosen in the outsourcing case. Treating the royalty payment in the outsourcing case as the appropriate royalty in the foreign direct investment case would induce a distortion to the choice of organisational form and in the level of investment undertaken.¹⁴

Identifying where profit is generated is a fundamental problem of conventional corporation taxes in an international setting. In some ways it is a problem with which the world has learned to live, even though allocating profit among source countries is in practice a source of great complexity and uncertainty. But this problem is not just one of complexity and uncertainty: it can — and perhaps should — also affect the fundamental design of the tax system.

4.2 Distinguishing different forms of income

The Canadian tax system, in common with that of most other countries, taxes the interest, rents and royalties payments received by Canadian recipients, whether individuals or companies. Thus, the return to equity investment — a dividend receipt — is typically taxed in a very different way to the returns from other forms of investment. This issue has not been directly addressed in the economic literature investigating the optimal taxation for foreign corporate income, and therefore requires some discussion.

There are at least two different forms of payment here. The first reflects a return to activity which has taken place in the home country. In principle, for example, if a patent is developed by a Canadian company, and a foreign affiliate is licensed to use that patent in its activity, then it would pay a royalty to the Canadian owner of the patent for the right to use it. The receipt of this royalty would be taxed in Canada (but typically not in the other country). This does not contradict the general principle of exempting foreign income discussed above, since the royalty is in effect a return to the research and development activity which took place in Canada and which resulted in the patent.

However, the second form of payment does appear to contradict the principle of exempting foreign income. A classic example here is the distinction between debt and equity. Typically, economists argue that the tax system should not differentiate between investment financed by debt and by equity. Indeed, in practice it is becoming increasingly difficult to distinguish the form of financial contracts, where such contracts may have some of the traditional elements of both debt and equity contracts. However, let us leave to one side here the issue of whether debt and equity should be treated equally, and consider only the international aspect of this. If dividends received from foreign affiliates are exempt home country tax, then what is the appropriate treatment of interest received?

¹⁴ Vann (2007) discusses a range of more practical problems with the arm's length principle.

A natural starting point here would be to simply refer to the analysis above, which made no distinction according to the form of financial transaction between parent and foreign subsidiary. Suppose a Canadian parent company raised finance on the world market in order to undertake an investment in Mexico. The analysis above suggests that Canada should not seek to tax the income arising in Mexico. The fact that the company may choose to finance the Mexican subsidiary through debt, rather than through equity, should in principle make no difference.

However, the structure of the international tax system is problematic here, since almost all countries would grant relief to the interest paid to the Canadian parent (subject to host country thin capitalisation rules). If Canada were simply to exempt interest income received from foreign subsidiaries as implied above, then this income would not be taxed at the corporate level at all. Indeed, given the preferential treatment of interest payments by the subsidiary, there would be a significant advantage to Canadian companies choosing to lend to their foreign subsidiaries.

The issue here is that the basic structure of the international tax system for multinational companies is close to a source-based tax for equity-financed investment, but a corporate-residence based tax for debt financed investment. It is hard to think of a sensible economic rationale for this practice, especially when the finance provided is internal to the multinational company. One possible response to this distinction is to call for a worldwide change in this practice. But, more feasibly, the issue for an open economy such as Canada, is what its optimal policy should be, given the treatment of interest payments elsewhere.

This issue is related to the issue of relief for interest payments by the Canadian parent. If the basic aim of the tax system is to tax profit arising in Canada, then in principle relief should only be given for interest payments made by the parent to the extent that the underlying borrowing was used to finance activities which took place in Canada. Conversely, if interest relief is not granted for payments for borrowing used to finance foreign activity, then there is no clear rationale for taxing interest received from foreign affiliates.

Exempting foreign source interest receipts from taxation would be a radical departure from the international norm, but one which is implied by the principle that only economic activity taking place in that jurisdiction should be taxed. One caveat to the recipient country introducing such a policy would be to consider whether the country could do better than leaving the interest entirely untaxed. Given that interest is usually taxed in the hands of the recipient, then the home country collecting some tax revenue on interest receipts might have a negligible impact on incentives (relative to the no tax case) and therefore raise welfare in the home country.

4.3 Capital gains

Another form in which the return to an investment can be earned is through a capital gain. In an international case, a parent company may sell a foreign affiliate, rather than continuing to operate it. The price at which the affiliate can be sold should in principle reflect the net present value of post-tax earnings.¹⁵ The presumption here is that the affiliate is earning a return which is subject to corporation tax in the host country; if the home country of the parent does not seek to tax the dividend stream from the affiliate to the parent, then there is little rationale for taxing the capital gain earned from the sale of the affiliate.

However, this argument applies equally to domestic affiliates. If a Canadian parent has a Canadian affiliate which is subject to Canadian corporation tax, then the sale price of that affiliate should reflect the corporation tax due on the future returns that will be made. Imposing capital gains tax on the sale would be a form of double taxation which would be avoided in the case of dividends paid to the parent.

Note that this argument applies to the sale of companies which generate a return subject to corporation tax. It does not necessarily apply to the sale of an asset which does not provide a stream of taxed returns but which simply appreciates in value, such as a work of art. In that case, imposing capital gains tax would not imply any double taxation. The sale of assets owned by an affiliate is less clear. To the extent that the value of the asset is determined by the net present value of the post-tax return which the asset generates, then in principle capital gains tax would be a form of double taxation. But to the extent to which the asset valuation depends on other factors, then there may be a case for retaining a capital gains tax charge.

¹⁵ This may reflect the value of the selling company or the acquiring company, but in either case, the price should reflect the post-corporation tax valuation.

5. Defining the Tax Base

There are two fundamental questions in the taxation of the profits of multinational business. First, “where should the profit be taxed?”. This paper has primarily addressed this question. The second question is “what should be taxed?”. Devereux and Sorensen (2006) and Auerbach et al. (2007) describe a matrix of alternative possible international tax regimes which answer these two questions in different ways.

In the context of the appropriate taxation of international profit, it is worth raising the second question, if only to highlight the difficulties in interpreting the “effective tax rates” used, but not defined, in Sections 2 and 3. The important distinction here is between effective marginal and average tax rates.

The most common measure used in economic theory is an effective marginal tax rate, which measures the percentage difference between the pre-tax and post-tax rates of return on a marginal investment. This is indeed the most appropriate use in the context of Section 2, where the analysis examines required rates of return, and by implication marginal investment projects. But it is well known that it is possible to design a tax system which in effect taxes only economic rent; since it does not tax a marginal project, the effective marginal tax rate is zero. A flow of funds tax (see, for example, Meade, 1978) or a tax with an allowance for corporate equity (see IFS, 1990; Bond and Devereux, 1995, 2003) has these properties. One way of achieving full harmonisation of effective marginal tax rates would therefore be to have cooperation over agreement to introduce such a tax base.

Unfortunately, however, even this approach would not achieve production efficiency in a broader context. This is because in a world with discrete investment choices, it is the effective average tax rate which affects those choices. The idea is that a company which is choosing between two profitable location decisions, for example, would choose the location with the higher post-tax net present value. The role of tax is in determining how much of the pre-tax net present value remains after tax: this is measured by the effective average tax rate (see Devereux and Griffith, 1998, 1999). Neither a cash flow tax nor a tax with an allowance for corporate equity has a zero effective average tax rate. So, unless statutory tax rates were completely harmonised (as well as bases), investment decisions would remain distorted.

Of course, the nature of the optimal tax system is in any case more difficult in such a setting, since it is a setting in which companies may earn an economic rent. As we discussed above, the presumption in favour of production efficiency strictly holds only when there is no economic rent or it is taxed at a rate of 100 percent. But if we aim to achieve production efficiency as an approximately optimal system, using taxes based on the residence or source of the company, then the presence of discrete choices does indicate that both effective marginal and effective average tax rates need to be harmonised.

6. Conclusions

This paper examines economic principles which underlie the optimal taxation of international corporate profit. Sections 2 and 3 review and extend the analysis of the forms of taxation which can generate global and national optimality respectively. Section 4 discusses issues which arise in attempting to implement a source-based tax, and Section 5 briefly raises issues concerning the nature of effective tax rates.

Global optimality is generally achieved by production efficiency. The analysis in Section 2 demonstrates that — in the context of cross-border portfolio and direct investment, as well as international trade in goods and services — taxes on a source or a residence basis would need to be fully harmonised to achieve production efficiency.

The conditions for national optimality depend partly on the characteristics of the economy: the government could, in principle and in some cases, induce a welfare gain by stimulating or reducing outbound direct investment. However, Section 3 argues that a central case is where domestic and outbound investment are both financed at the margin by inflows of portfolio investment, and the country has no market power: in this case, there is no convincing argument for taxing the returns from outbound direct investment, even if domestic investment is taxed on a source-basis. This leads to a presumption in favour of source-based taxation.

However, Section 4 considers a number of conceptual problems with the implementation of a source-based tax system, based on separate accounting. The first is whether there is, in many cases, a reasonable conceptual basis for allocating the global profits of a multinational company to individual jurisdictions. Broadly, global profits may be higher simply because the company is global: those returns are not directly related to specific economic activity taking place in a specific country. Particular conceptual and practical difficulties arise with debt finance and with transfer prices on the sale of goods and services within a multinational company.

Another important issue considered is whether the return to debt finance should be treated differently from the return to equity finance. Broadly, many countries, including Canada, exempt foreign source dividends from tax but tax foreign source interest. There is no clear rationale for this distinction, which implies a source-basis for equity finance and a residence-basis for debt finance.

Consideration of the feasibility of source-based taxation does not paint a very optimistic picture of the future of taxes on corporate profit. And the paper has not taken account of tax competition, which appears to be driving down statutory rates of tax around the world.

Can taxes on corporate profit survive in the long run, without doing too much harm in distorting corporate behaviour? Perhaps a more radical reform is called for. One possibility to consider is a destination-based tax, levied where sales are made to a final consumer (see Bond and Devereux, 2002, and Auerbach et al., 2008). If the final consumer is immobile, then such a tax would not distort the location of economic activities undertaken by companies. If it applies to all companies competing in the same market, it would not distort the pattern of competition. And since income would be measured only by reference to sales to a third party, intra-company transfers would not be taxable, and transfer pricing would become irrelevant. Such a tax therefore meets the objectives of a globally optimal tax system outlined above. It would also be optimal from the perspective of a single country, since no source or residence taxes would be applied in that country. If other countries maintained source-based taxes, then that country would attract higher inward direct investment. The feasibility of such a tax needs to be examined in more detail.

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